Hepatitis B e antigen-positive Health Care Workers—Where Are We Today?

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Bibliography with Abstracts and Summaries


Abstract:
In the United States, transmission of hepatitis B virus (HBV) and hepatitis C virus (HCV) from health care exposures has been considered uncommon. However, a review of outbreak information revealed 33 outbreaks in nonhospital health care settings in the past decade: 12 in outpatient clinics, 6 in hemodialysis centers, and 15 in long-term care facilities resulting in 448 persons acquiring HBV or HCV infection. In each setting, the putative mechanism of infection was patient-to-patient transmission through failure of health care personnel to adhere to fundamental principles of infection control and aseptic technique (for example, reuse of syringes or lancing devices).

Difficult to detect and investigate, these recognized outbreaks indicate a wider and growing problem as health care is increasingly provided in outpatient settings in which infection control training and oversight may be inadequate. A comprehensive approach involving better viral hepatitis surveillance and case investigation, licensing and public awareness is needed to ensure that patients are always afforded basic levels of protection against viral hepatitis transmission.


Summary
To prevent transmission of hepatitis B virus (HBV) from health care workers (HCWs) to patients, highly viraemic HCWs are often advised to restrict performing exposure prone procedures (EPPS). To prevent loss of highly qualified medical personnel and simultaneously minimize transmission risk to patients, we offered highly viraemic HCWs antiviral therapy and evaluated the effects of the strategy. Eighteen chronic BV-infected HCWs have been monitored every 3-6 months for a median period of 5.6 years (range 1.1-12.5 years). Antiviral therapy was offered if HBV DNA was above 10^5 copies/mL and EPPs were performed or active liver disease was present. Median HBV DNA levels, the percentage of days with HBV DNA above 10^3, 10^4 and 10^5 copies/mL, and reduction of HBV DNA during antiviral treatment have been analyzed for hepatitis B e antigen (HBeAg)-positive and HBeAg-negative HCWs separately. Prolonged viral suppression was achieved in both HBeAg-positive, as well as HBeAg-negative HCWs. In HBeAg-negative HCWs treatment with interferon or lamivudine maintained HBV DNA levels below 10^5 copies/mL. For HBeAg-positive HCWs continuous treatment with tenofovir or entecavir was essential for reaching low viraemia persistently. In 2004, median HBV DNA levels in both HBeAg-negative and HBeAg-positive HCWs were below 10^3 copies/mL and all HCWs executed their profession work full-range. Fort both HBeAg-positive and HB3Ag-negative HCWs, antiviral
treatment is effective in persistent suppression of virus levels below $10^5$ copies/mL. This observation supports antiviral therapy as a viable management option instead of work restriction, with the provision of regular expert monitoring to include quantification of HBV DNA.


Summary

Different guidelines exist for the management of hepatitis B virus (HBV)-infected health care workers (HCWs). Various HBV DNA levels are used as a cutoff level to determine whether an HBV-infected is allowed to perform exposure-prone procedures (EPPs) or not. In this paper we discuss the factors that determine HBV DNA levels and the implications of different HBV DNA levels and the implications of different HBV DNA cutoff levels for EPP performing HCWs. If the level of HBV DNA in the serum of HCWs is used to determine acceptability for the conduct of EPPS, it is necessary to take in account the variability in time for HBV DNA levels in HBV carriers an the reliability and reproducibility of the molecular diagnostic test involved. The issue of standardization has to be addressed, before a universal, maximum level of viraemia for EPP performing HCWs can be introduced.


Abstract

Background: There has been no recent assessment of public attitudes and opinions concerning risk of bloodborne virus transmission during health care.

Methods: Seven items in the 2000 annual Helathstyles survey were used to assess current attitudes and opinions about health care providers infected with human immunodeficiency virus (HIV) and the risk of bloodborne virus transmission during health care in a sample of approximately 3000 US households.

Results: Of the 2353 respondents, 89% agreed that they want to know whether their doctor or dentist is infected with HIV; 82% agreed that disclosure of HBV or HCV infection in a provider should be mandatory. However, 47% did not believe that HIV-infected doctors were more likely to infect patients than doctors infected with HBV or HCV. Opinions were divided on whether HIV-infected providers should be able to care for patients as long as they use good infection control: only 38% thought that infected providers should be allowed to provide patient care.

Conclusions: These findings suggest that improved public education and risk communication on health-care associated bloodborne infections is needed.


Abstract
The risk of transmission of HIV or hepatitis B from infectious health care orders to patients is low. However, inadvertent exposure causes great concern among patients of an infected health care worker. The patients of a Scottish dentist diagnosed hepatitis B e antigen positive were informed by letter of their exposure. A sample of patients was sent a postal questionnaire. Most (56%) respondents reported feeling anxious on receiving the letter but almost all (93%) thought patients should always be informed following treatment by an infectious health care worker, although the risk was very small.

We discuss clinical and ethical factors relating to informing patients following exposure to an infectious health care worker. We suggest that a balance should be struck between patients’ wishes to know of risks to which they have been exposed, however small, and the professional view that when risks are negligible, patients need not be informed.

6. Leung W-C. Should Screening of Student and Qualified Nurses for Bloodborne Infections be Compulsory and Infected Individuals Excluded from Work? Nurs Ethics. 2001;8(2):133-141

Abstract

Policies on whether student and qualified nurses should be screened for bloodborne infectious and whether infected individuals should be excluded from work must be based on sound ethical principles. Patients have rights, and nurses and employers have duties to respect these rights. However, nurses also have rights that must be respected by the employers and the State. Balancing these competing rights and duties is a complex procedure. In this article, these rights and duties are discussed and applied to a selection of issues.


Abstract

**Background:** Transmission of hepatitis B virus (HBV) to patients by infected surgeons who carry hepatitis B e antigen (HBeAg) has been documented repeatedly. In the United Kingdom HBeAg-positive surgeons are not permitted to perform certain procedures that carry a risk that patients might be exposed to the blood of a health care worker. There are no practice restrictions for carriers of hepatitis B surface antigen without detectable HBeAg, unless transmission has been demonstrated.

**Methods:** In four unconnected cases of acute hepatitis B, surgery was identified as a possible source, so we tested the surgical teams for serological markers of HBV infection. In each case a surgeon was amplified by a nested polymerase chain reaction from serum from the four infected surgeons and the four patients, and direct nucleotide sequencing of two regions of the HVB genome was performed. Alternative sources of infection were ruled out. Other patients on whom three of the surgeons had recently performed procedures were tested.

**Results:** All four surgeons were carriers of HBV, but none had detectable serum HBeAg. The nucleotide sequences of HBV DNA from the surgeons were indistinguishable from those from the corresponding patients. The screening of other exposed patients identified at least two other patients who had probably acquired hepatitis B infections from one of these surgeons.
Conclusions: Surgeons who are carriers of HBV without detectable serum HBeAg can transmit HBV to patients during procedures.


Abstract

This article provides the current recommendations of the Society for Healthcare Epidemiology of America (SHEA) regarding the management of healthcare workers infected with hepatitis B virus (HBV), hepatitis C virus (HCV), or the human immunodeficiency virus (HIV). For the reasons cited in this article, SHEA now maintains that separate virus-specific management strategies are appropriate for healthcare workers who are infected with these unrelated viruses. SHEA emphasizes the use of appropriate infection control procedures to minimize exposure of patients or providers to blood, emphasizes that transfers of blood from patients to providers and from providers to patients should be avoided, and argues that infected health-care workers should not be prohibited from participating in patient care activities solely on the basis of their bloodborne pathogen infection. SHEA recommends that hepatitis B e-antigen-positive healthcare workers routinely should double glove and should not perform those activities that have been identified epidemiologically as associated with a risk for provider-to-patient HBV transmission despite the use of appropriate infection control procedures. SHEA also recommends that HCV- and HIV-infected providers use double gloving for procedures, but recommends that these providers not be excluded from any aspect of patient care unless epidemiologically incriminated in the transmission of these infections despite adequate precautions. SHEA argues for comprehensive education concerning bloodborne pathogens for all healthcare providers and trainees and against mandatory pathogen-specific educational requirements for infected providers. SHEA recommends against specific competence-monitoring procedures directed at these healthcare workers infected with bloodborne pathogens, arguing for managing infected providers in the context of a comprehensive approach to the management of all impaired providers. SHEA emphasized the importance of offering employees who how disabilities reasonable accommodations for their disabilities. The article discusses exposure management in detail and, in general, recommends adherence to existing guidelines for managing exposures to these agents. Finally, SHEA recommends against routine mandatory testing of providers. Specific details and the rationale for these recommendations are included in the body of the article.